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(71) Applicant *(for all designated States except US)*: RUNONWEB, INC. [US/US]; Suite 204, 10120 Empyrean Way, Los Angeles, CA 90067 (US).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: ROZENMAN, Tzvi [US/IL]; Naomi Street 15, 3552 Jerusalem (IL).

(74) Agents: MANDIR, Wililam, H. et al.; Sughrue, Mion, Zinn, Macpeak & Seas, PLLC, Suite 800, 2100 Pennsylvania Ave., N.W., Washington, DC 20037-3202 (US).

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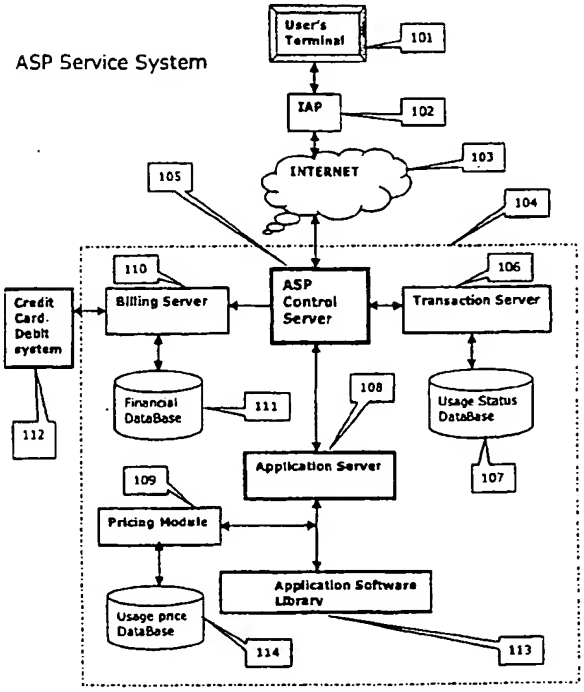
(54) Title: A SYSTEM FOR BILLING OF SOFTWARE USAGE SERVICE OVER THE INTERNET



(57) Abstract: A method and system for billing application software usage transactions conducted over the Internet between a User on a terminal (101) and an Applications Service Provider (ASP) (104) server system through an Internet Access Provider (IAP) (102). Upon connection between the User's terminal (101) and the ASP, the ASP system checks the User's terminal for the User's identity and his "usage status". This "usage status" identifies for each software package offered by the ASP, whether the User is a "free of charge" software evaluator, or a paying customer. This "usage status" together with the User's billing information such as his credit card or other financial contract between the User's company and the ASP is stored in a transaction server for the duration of his connection session. When the User selects a particular application software from a library of various application software offered by the ASP, an Application Server (108) transmits to the User's terminal entry form images for the User to enter his input information data needed to use the selected application software. A Pricing Module predetermines the usage price, of application software "Runs", on the basis of the data in the input form images submitted back by the User to the ASP system. A Billing Server (110) associates the price signal from the Pricing Module with the User's "usage status" record from the transaction server database and determines an actual price for the usage. At the end of each application "Run", the User's account is debited by either a credit card clearing system (112) or by the User's predetermined financial arrangement, which is stored in the financial database (111) of the billing server. At the end of the User's session, the charges for all the transactions during the session are stored in the financial database (111) of the billing server.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A System For Billing Of Software Usage Service Over The Internet

RELATED APPLICATION

This application is related to U.S. Application No. 60/180,275 filed February 4, 2000, which is incorporated herein by reference.

TECHNICAL FIELD

This invention relates to a method and system for billing software usage services transacted for and provided over a data network such as the Internet or an Intranet.

BACKGROUND OF THE INVENTION

The Internet today has become the gateway for connected Users to access a plethora of information and interactive services. In addition, the Internet can provide Users a mechanism for utilizing application software that are located on servers in various locations and are connected via the Internet network. The availability of the use of application software on a network is provided by various businesses known generally in the industry as Applications Service Providers (ASP). Through the ASP services, software can be made available for use on a rental basis whereby the User is charged by various methods: fixed charges, monthly charges, "connect time" charges and others.

The use of application software normally involves several steps whereby,

- The User feeds data into specific software entry forms,
- The application software "Runs" the User's input through its internal execution processes that consist of various complex algorithms that are linked to internal or external data sources,
- Output forms are created that present the results of the software execution process to the User.

These output forms contain information in the form of graphs, charts, numbers and text. The User examines the resultant output forms and may elect to continue "running" the software by changing some of his data input and submitting it for another "run" cycle, or may terminate his current running session of the particular software. The information contained in the output forms created by the software is valuable to the User, and therefore such software usage establishes a basis for a business transaction whereby the User is charged for the receipt of the results in the output forms.

Billing for software usage requires the User to establish a financial relationship with the Applications Service Provider (ASP). However the relationship may be very fleeting if the User wants to use the software provided by the ASP only on an irregular, occasional basis. Furthermore, perhaps due to geographical distance, the ASP might not wish to enter into a financial arrangement with the User. In that case, the User needs to be charged for the usage only while connected to the ASP service. However, even if User has an established financial arrangement with the ASP, the User and/or the ASP service provider, may desire to have the software usage charges tied to and determined during the connection session.

The existing billing arrangements for fixed charges, monthly charges, and "connect time" charges are inadequate and lacking. Fixed charges require a financial contract with the User, which may be impractical especially for an occasional User of the ASP service. Secondly, billing by logging the time the User is connected to the ASP service does not reflect the value of the transaction and is very erratic. There is a need to tie the billing to the usage of specific software during the connection session between the User and the ASP.

SUMMARY OF THE INVENTION

The present invention is applied to the use of a type of application software that utilizes the User's input to perform various internal calculations and returns the calculation results to the User in output forms. Such application software enables many options to carryout different calculations depending on the User's input. In one sample of the User's input, the calculations performed by the software may be very complex and require the deployment of all the internal schemes and algorithms of the software. In a variation of some data of User's input, the required calculations are simple and utilize only a fraction of the internal calculation schemes. The User normally uses such software by making a series of parametric "Runs" in which he changes some of his input to cause the software to perform different calculation schemes that generates different results. Each such different "Runs" may be charged by a different rate depending on the run.

In many cases, before agreeing to be charged for usage of specific application software, the User desires to test and evaluate the software. The ASP may avail the software usage service to the User for testing and evaluation at no charge for a limited time period. During the pre-established test period the User "usage status" is as an "Evaluator" and the charges for usage are not billed. Beyond the User's testing period, free access to software is denied and the User's "usage status" changes to a "paying customer". As a paying customer, the User may be under a different "Billing policy" enjoying discounts such as for frequency of usage, repeat parametric runs or other methods of calculating discounts.

The object of this invention is to provide a system and method for billing for software usage services over a network during a connection session between the User's terminal and ASP's service system. The system will be able to track the charging status of the Users as they move from evaluating software free of charge, to become paying customers. For the paying customers, the system will provide a method of billing per transaction for each

specific application by calculating the charges on the basis of the User's input to, and output from, the specific application software utilized during the session.

The present invention provides a system and method for determining the charges and the billing for software usage transactions conducted over the Internet between Users connected through an Internet Access Provider (IAP) to an Applications Service Provider (ASP) service system. In accordance with the invention, upon the connection of a User to the ASP, the system checks the User's terminal storage disk for the User's identity and determines the User's terminal "Billing Policy" i.e. the specific details of the specific price and charge items that were assigned to the specific user to debit his charge account. The User's terminal "usage status" is transmitted to the system's billing platform together with the User's temporary Internet Protocol (IP) that is assigned through by the IAP to the User's session for use by the User's terminal. The billing platform intercepts the User's input data stream of the specific software that the User desires to use, and calculates the charge associated with this data stream. The calculated charge is referenced with the User's "usage status" and his "Billing Policy" to set the actual price for the "processing" of the User's input data by the specific software system. This actual charge is stored in the system and is accumulated each time the User varies the input data. This process can repeat itself for the utilization of different software available for use on the ASPs service during the User's temporary Internet session. The billing system debits an account of the User established for the transaction. This account will likely be established by the User prior to the execution of the transaction for billing in a predetermined manner to, for example, a User's contract with the ASP, a User's selected credit card, a User's telephone account associated with a phone number, or other billing mechanism. For example, in connection with the User's telephone account, an Automatic Number Identification (ANI) can be associated with the

User's terminal, and a telephone account associated with the ANI is billed for the cost of the transaction.

BRIEF DESCRIPTION OF THE DRAWING

Fig. 1 is a block diagram showing the network elements of the invention.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

Fig. 1 is a block diagram showing the network elements for providing the billing functionality of the present invention for software usage transactions conducted by a User through an Internet Access Provider to an Application Service Providers (ASP) connected to the Internet.

With reference to Fig. 1 a User's terminal 101 is connected to the Internet 103 through an Internet Service Provider (ISP) 102. By inputting the URL address of the ASP the User may be linked to the ASP web site HTML pages. Alternately, the User may be linked directly to the ASP 104 by clicking an icon on the User's desktop. The "User" may be a casual web visitor browsing the Internet or a regular customer who is linking to the ASP for the purpose of using software offered by the ASP. The web site HTML pages contain various icons representing different software that are offered for use on the ASP software service system. Alternatively, the listing of available software application can be provided to the User through an XML front end.

In many cases the ASP service is offered through an Internet portal that are accessed by casual visitors who browse the Internet. These casual visitors may desire to test and evaluate the software that are presented on the web portal and are offered for usage through connection with the ASP service system. The ASP may offer software testing and evaluation free of charge for a limited time period or for a limited number of "Runs". The ASP desires to have a system that checks the history of usage by a particular User in order to determine

when to start charging him for his usage of particular software. When the User's free of charge privileges terminate, the User may wish to pay for usage just during his usage session without establishing any financial contractual arrangements. In that case, the User's credit card may be used as an instrument of payments. The User may wish to run different software during his visit to the portal. In that case the User's total charges will be accumulated for the succession of "Runs" for each application.

The present invention provides a system and method for billing for software usage services under different types of charging methods. The system will be able to track the charging status of the Users as they move from evaluating software free of charge, to become paying customers. For the paying customers who use software regularly, the billing may be based on fixed charges with a pre-arranged financial contract. The non-regular User can submit his credit card for on line debiting. The User may also be part of company employees who use the software under various company policies. For all Users however, the system will provide a method of billing per transaction for each specific application by calculating the charges on the basis of the User's input to, and output from, the specific application software utilized during the session.

A connection between the User's terminal 101 and the ASP software usage service system 104 is initiated by, for example, the User clicking on any icon that represents a specific software available for Usage. Upon such initiation, the ASP control server 105 checks first, on the User's terminal storage disk, for a certain file which determine the User's identity and his "Usage Status". If the control server 105 finds no such file, the control server 105 determines the User to be a new, first-time User, and transfers to the User's computer storage disk a "client" usage file that initiates the user's identity and usage status to enable

him to connect to the ASP service system. The control server 105 then establishes a connection between the User's terminal and the ASP service system 104.

Upon checking for the "usage status" on the User's terminal storage disk and establishing the connection with the User's terminal, the ASP control server 105 transfers the User's identity to the billing server 110 that checks the financial database 111 for a financial arrangements record that is associated with the User's identity. A financial record code is past back to the control server 105, which in turn passes to the transaction server 106 all of the User's information. The transaction server 106 creates a record of the User's identity that contains his billing and software usage status and the User's temporary Internet Protocol (IP) that is assigned to the User's terminal for the User's session by an Internet Access Provider (IAP). The transaction server 106 stores this record for the current connection session in the Usage Status Database 107.

The ASP control server 105 receives the User's record signal from the Transaction server 106 that is stored in the Usage status database 107. The ASP control server 105 checks this record to determine whether to send to the User's terminal 101 an image of entry forms for the User to enter his credit card information prior to initiating connection with the User's terminal. When the credit card entry form is sent to the User's terminal 101 and received back by the ASP control server 105, it is then transmitted to the Billing server 110. The Billing server 110 checks the validity of the credit card information by engaging the credit card debit system 112. The approved credit card data record is stored in the financial database 111 or is transmitted back to User's terminal for additional information or as a message that the credit card is not valid.

The ASP control server 105 sends a signal to the Application Server 108 to establish connection with the User's terminal 101 and to initiate the running/execution of the selected

application software from the application library 113. The application server 108 transmits to the User's terminal 101, the images of the entry forms of the particular software selected by the User so he may enter his input information data needed to run the application software, and halts the running/execution process. Upon receiving from the User's terminal 101 the images of the filled-out data entry of the software's input forms, the image forms are transmitted to the ASP application server 108 together with a User identity signal. The application server 108 decides, on the basis of the signal received, whether to send the filled-up User's forms to the application software for the resumption of the execution process or transmit these images to the Pricing Module 109.

When receiving the filled-up data input images, the Pricing Module 109 examines the entry data and calculates a price of this specific usage request by associating the data in the input form with the record of usage prices components stored in usage prices database 114. This calculated price from the pricing server 109 together with the User's "usage status" record from the transaction server database 107 are transmitted to the Billing Server 110 which determines an actual charge for this specific usage by utilizing the financial record in database 111. The information of the actual price charges that will be incurred by the User for his requested software "Run" is transmitted to the User's terminal 101 for approval. Upon receiving the User's approval signal of the actual charges, Application Server 108 signals the application software to resume its running/execution of the filled-up input forms.

Upon completion/termination of the running/execution, the application server 108 examines the execution messages in the output from the run/execution to determine whether a successful execution by the the application software took place. A signal for a successful execution is transmitted to the Billing server 110 to initiate the debiting of the User's account by either a credit card clearing system 112 or by the User's purchase order which may be

stored in the financial database 111 of the Billing server 110. The Billing server 110 then creates a record of this debit and stores it in the financial database 111. The application server 108 transmits to the User's terminal screen the output images that were created by the application software together with a message on the success or failure of his specific run. The User can signal, by clicking, for example, an icon on his message screen, that he wishes to continue the running/executing of the specific software usage process or terminate its usage. If the User signal is that he desires to continue the running/executing, it will cause the application server 108 to transmit to the User's terminal his filled-up entry form for modification and submittal of another run. If the User signals a termination request, this signal is stored by the transaction server 106 in the User's record and the ASP control server 105 signals to the web server (Not Shown) to transmit to the User's terminal 101 the HTML page that displays the portal's software offering. The User may desire to run another software by clicking the appropriate icon. The User's temporary Internet Protocol (IP) is transmitted to the transaction server 106, which matches the User's IP with the User's usage record (which is kept active as long as the User remains linked to the portal) and signals to the Application Server 108 to initiate a new software run.

When the User leaves the portal it signals the end of the User's session. The transaction server 106 deletes the User's record, and the charges for all the transactions during the session that are associated with the User's identity are stored in the financial database 111 of the billing server.

While a preferred embodiment of the invention has been described above, those skilled in the art will recognize that the invention is applicable to various applications. For example, the ASP service system provider could be the IT department within a company, and the ASP users are employees within a company. Furthermore, the transaction need not be

limited to a software program, but could involve the presentation of information to the user or an interactive service.

Claims

1. A method of billing an account associated with a User's identity for the cost of a software usage transaction conducted on a network between an Applications Service Provider (ASP) service system and a User's terminal, the User's terminal being assigned a temporary address on the network that is used for the transaction, said billing and said transaction both being conducted on said network, the method comprising:

transmitting to a User's terminal a list of application software available for use on the network;

receiving a signal from the User's terminal identifying a selected software from a list of application software;

establishing a connection between the User's terminal and the ASPs service system;

transmitting to the User's terminal a performance signal that checks the User's terminal "usage status" condition;

transmitting to the User's terminal an input form enabling the User to enter input information to use the selected application software;

receiving from the User's terminal the input form containing the input information entered by the User;

determining a price of usage associated with the input information and a predetermined billing policy; and

billing an account associated with the User's identity in accordance with the determined price upon a successful run of the application software.

2. The method of claim 1, further comprising:

transmitting to the User's terminal, computer files enabling execution capability;

receiving an identifying signal that associates the User's identity and an assigned temporary address;

storing an association between the User's identity, User's assigned temporary address, a User's "usage status" code and the User's selected software; and

establishing a connection between the User's terminal and an application server.

3. The method of claim 2, further comprising:

referencing the price of the usage associated with the input information with the User's identity, the User's "usage status" condition and the selected software, to determine the actual cost for the transaction and a billing signal;

referencing the actual cost of the transaction in the billing signal to the account associated with the User's identity.

4. The method of claim 1, wherein the network is one of a data network, the Internet, and an Intranet.

5. The method of claim 4, wherein the assigned temporary addresses is an Internet Protocol (IP) address.

6. The method of claim 4, wherein the ASP's service system provider is the IT department within a company.

7. The method of claim 4, wherein the ASP's users are the employees within a company.

8. The method of claim 4, wherein the ASP's service system provider is an Internet Service Provider (ISP) and the transaction involves providing the User with information.

9. The method of claim 5, wherein the ASP's service system provider is an Internet Service Provider (ISP), and the transaction involves providing the User with an interactive service.

10. The method of claim 6, wherein the list of application software available for use on network is transmitted to the User's terminal through at least one of HTML and XML front end.

11. The method of claim 7, wherein the application software's input form is transmitted as files to the User's terminal computer disks.

12. The method of claim 8, wherein the application software's input form is stored as a file on the ASPs service system's storage disks.

13. The method of claim 3, further comprising, after receiving the billing signal, determining whether the User has approved the transaction, and inhibiting billing of the account associated with the User's identity if the User has not approved the transaction.

14. The method of claim 13, further comprising, after determining that the User approved the transaction, determining whether the application software has successfully completed processing of the input information inputted by the User, and inhibiting billing of the account associated with the User's identity if the transaction was not completed.

15. The method of claim 3, further comprising transmitting the cost of the transaction billed to the account associated with the User's identity to a billing entity for billing to the User in accordance with a billing mechanism established by the User.

16. The method of claim 12, wherein the billing entity is determined by the billing mechanism in accordance with the identity of the User.

17. The method of claim 12, wherein an Automatic Number Identification (ANI) is associated with the User's terminal and a telephone account associated with the ANI is billed for the cost of the transaction.

18. A method of conducting a software usage transaction on a network between a User's terminal and a provider for which a charge is determined and billed, comprising:

receiving from the User's terminal a request for a transaction to use selected application software;

transmitting to the User software input form enabling the User to enter input information about the selected application software;

receiving from the User the software input form containing the input information data, entered by the User;

calculating a software usage cost of the transaction on the basis of the input information;

providing the User with an output form created by the application software by processing the input information;

generating a billing signal to bill for the cost of the transaction, the billing signal including the cost of the transaction and an assigned temporary address of the terminal requesting the transaction; and

billing the account associated with the User's identity for the cost of the transaction.

19. The method of claim 18, wherein the network is one of a data network, the Internet, and an Intranet.

20. The method of claim 18, further comprising, after receiving the billing signal, determining whether the User has approved the transaction, and inhibiting billing of the account associated with the User's identity if the User has not approved the transaction.

21. The method of claim 18, further comprising, after receiving an approval signal, determining whether the selected application software has successfully completed input data processing, and inhibiting billing of the account associated with the User's identity if the transaction was not completed.

22. The method of claim 18, further comprising transmitting the cost of the transaction billed to the account associated with the User's identity to a billing entity for billing to the User in accordance with a billing mechanism established by the User.

23. The method of claim 22, wherein the billing entity is determined by the billing mechanism in accordance with the identity of the User.

24. The method of claim 19, wherein an Automatic Number Identification (ANI) is associated with the User's terminal, and a telephone account associated with the ANI is billed for the cost of the transaction.

25. A method of billing an account associated with a User's identity for the cost of one or more software usage transactions within a session conducted on a network between one or more software providers and a User's terminal, comprising:

receiving from the User's terminal a request for a transaction to use selected application software;

transmitting to the User' a software input form enabling the User to enter input information about the selected application software;

receiving from the User the software form containing the input information entered by the User to transact the use of the selected application software;

calculating a software usage cost of the transaction on the basis of the input information;

providing the User with an output form created by the application software by processing the input information;

receiving a billing signal to bill for the cost of the transaction, the billing signal including the cost of the transaction and an assigned temporary address of the User requesting the transaction; and

billing an account associated with the User's identity for the cost of the transaction.

26. A method of billing an account associated with a User's identity for the cost of a transaction conducted on the Internet between an Internet Service Provider (ISP) and a User's terminal through an Internet Access Provider (IAP), the User's terminal being assigned an Internet Protocol (IP) address that is used for the transaction, comprising:

receiving from the User's terminal a request for a transaction to use particular application software;

transmitting to the User's terminal screen a software input form enabling the User to enter input information needed to transact the use of said particular application software;

receiving from the User's terminal the software input form containing the entered input information to transact the use of said particular application software;

calculating a software usage cost of the transaction in accordance with the entered input information;

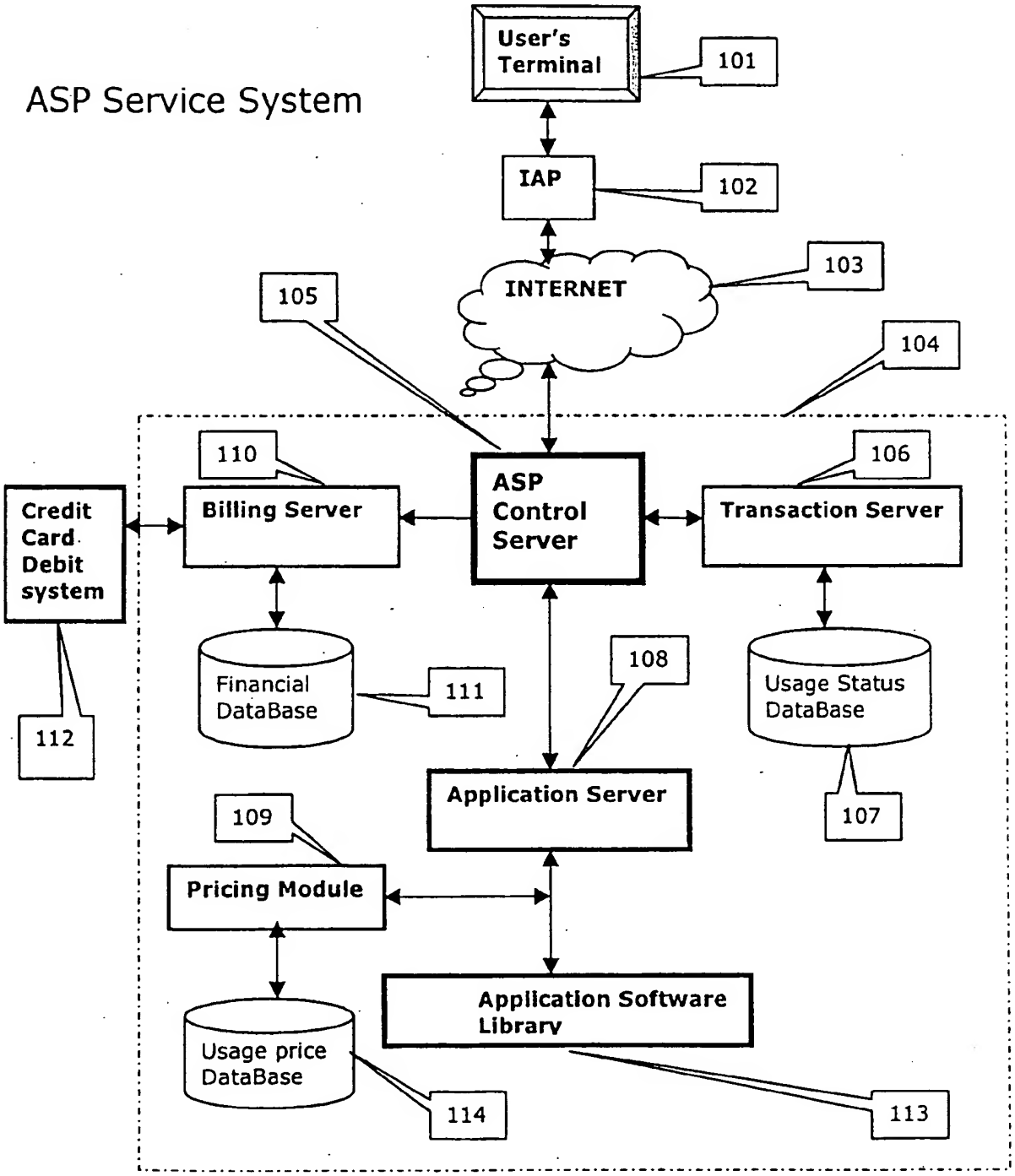
providing the User with an output form created by the application software processing the entered input information;

receiving a billing signal to bill for the cost of the transaction, the billing signal including the cost of the transaction and an assigned temporary address of the terminal requesting the transaction; and

billing an account associated with the User's identity for the cost of the transaction.

*

FIG. 1


ASP Service System
User's Terminal
101
IAP
102
INTERNET
103
105
104
110
ASP Control Server
106
Billing Server
Transaction Server
Credit Card Debit system
Financial DataBase
111
108
Usage Status DataBase
112
Application Server
107
109
Pricing Module
Application Software Library
Usage price DataBase
114
113

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US01/03361

A. CLASSIFICATION OF SUBJECT MATTER

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US CL :705/37, 40, 59

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

USPTO Patent Database

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,758,069 A (OLSEN) 26 May 1998, col. 3, line 40-col. 6, line 65, col. 7, line 4-col. 12, line 64, col. 13, line 6-col. 14, line 24.	1-26
X	US 5,649,187 A (HORNBUCKLE) 15 July 1997, col. 4, line 35-col. 7, line 66, col. 8, line 4-col. 11, line 63, col. 12, line 1-col. 13, line 18.	1-26
A	US 5,852,812 A (REEDER) 22 December 1998, col. 3, line 60-col. 6, line 65, col. 6, line 2-col. 9, line 50, col. 9, line 56-col. 13, line 62, col. 14, line 6-col. 17, line 63, col. 18, line 2-col. 23, line 10.	1-26

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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"&" document member of the same patent family

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